Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

November 29, 1999

L-99-255
10 CFR § 50.73

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Unit 1
Docket No. 50-335
Reportable Event: 1999-007-00
Date of Event: October 30, 1999
Manual Reactor Trip Due to Low
Steam Generator Levels During Start Up

The attached Licensee Event Report 1999-007 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,

J. A. Stall
Vice President
St. Lucie Nuclear Plant

JAS/EJW/KWF
Attachment

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, St. Lucie Nuclear Plant

IE22

PDR ADOCK 05000335

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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TITLE (4)

Manual Reactor Trip Due to Low Steam Generator Levels During Start Up

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	30	1999	1999	- 007 -	00	11	29	1999	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	003	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)	50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)	X 50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Kenneth W. Frehafer, Licensing Engineer	(561) 467 - 7748

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	-	-	-	NO	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On October 30, 1999, St. Lucie Unit 1 was in the process of a reactor startup. While Operations personnel were performing turnover activities, the level of the 1A steam generator began dropping and attempts to recover the 1A steam generator level were unsuccessful. Upon receiving annunciation of steam generator low level pre-trip alarms the reactor was manually tripped at 0641 hours. The plant was stabilized in Mode 3. There were no significant equipment issues during or after the manual reactor trip.

The cause for the manual reactor trip was personnel error. Operators paid insufficient attention to detail regarding the 1A steam generator steam flow/feed flow mismatch that resulted from unbalanced operation of the atmospheric dump valves.

Operations Management reinforced expectations regarding the role of control room supervisors and the conduct of crew turnovers. The plant was restarted later the same day. Procedural enhancements will be made with regard to the role of control room supervisors and atmospheric dump valve operation.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Description of the Event

On October 30, 1999, St. Lucie Unit 1 was in the process of a reactor startup. The unit condition just prior to taking the reactor critical was that the 1A & 1B steam generators were being fed by the auxiliary feedwater (AFW) system and were being steamed by the atmospheric steam dump (ADV) valves. The 1B feedwater pump had been started at 0600 hours and was being maintained in recirculation. The operation of the ADVs was with the 1A ADV in auto and the 1B ADV in manual. The main steam isolation valves (MSIVs) were both in the open position.

At 0614 hours the reactor was critical. The original plan for the shift was that the control room crew would conduct turnover with reactor power stable below the point of adding heat. However, following criticality, control room personnel decided to increase reactor power beyond three percent power (the point of adding heat) prior to the upcoming shift turnover. At 0630 hours the reactor startup had reached the point of adding heat and the reactor was believed to be stable. At this time dayshift Operations personnel were arriving in the control room ready to take over operation/startup of the unit. Believing that the unit was stable, turnover activities began. While Operations personnel were performing turnover activities the level of the 1A steam generator began dropping. After the level decrease was noted, operator actions to recover the 1A steam generator level were unsuccessful. Upon receiving annunciation of steam generator low level pre-trip alarms the operators manually tripped the reactor at 0641 hours. The plant was stabilized in Mode 3. There were no significant equipment issues during or after the manual reactor trip. St. Lucie Unit 1 was restarted later the same day without incident.

An event response team (ERT) was formed to perform root cause analysis.

Cause of the Event

When the unit tripped, the 1A ADV was in automatic and the 1B ADV was in manual control. When power was increased the output on the 1B ADV and steaming rate on the 1B steam generator remained unchanged while the output on the 1A ADV and steaming rate on the 1A steam generator was increased. This mismatch was not immediately recognized and addressed, which caused a drop in level in the 1A steam generator as power was increased. The crew did not comply with the expectations and procedural requirements for crew turnover in that stable conditions were not adequately verified.

Factors contributing to this event include:

1) Supervisory oversight was not adequate and did not ensure that individual roles and responsibilities were clearly defined and communicated.

2) The control room turnover that was in progress distracted from the evolution in progress.

3) A decision was made at the end of the shift to proceed beyond the point of adding heat. No additional crew briefing was conducted prior to this evolution and the impact of this decision on achieving stable plant conditions during turnover was not fully evaluated.

4) Procedural guidance regarding operation of the ADVs was inadequate; specifically, steam generator blowdown status, cautions to balance the ADVs and maximum power levels for AFW and ADV operation.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Analysis of the Event

This event is reportable under 10 CFR 50.72(a)(2)(iv) as "... any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF) including the Reactor Protection System (RPS)..."

Analysis of Safety Significance

This steam generator low level transient was caused by a steaming rate greater than feedwater flow. The failure to maintain the 1A steam generator water level resulted in a manual trip of the reactor. The plant responded correctly to the trip, and no significant equipment issues were identified.

Corrective Actions

1) The Operations Manager met with the key Operations personnel directly involved in this event, including supervisors, to specifically review their contributions to this event and how it could have been avoided.

2) The Operations Night Orders for November 1, 1999, included a briefing summary on this event. These orders also included additional guidelines for the conduct of crew turnovers. Operating crews were briefed on the lessons learned from this event prior to standing watch. The subsequent startup proceeded without incident.

3) Procedure AP-0010120, "Conduct of Operations," will be improved. Specifically, guidance will be provided in regard to the supervisor's role in recognizing vulnerable plant conditions and the assignment of resources to mitigate the vulnerability. Inherent in this guidance will be direction to ensure roles and responsibilities for operating personnel are clearly defined. This guidance will be reinforced during continuing operator license training.

4) Plant operating procedures will be revised to include additional guidance on the use of the plant atmospheric dump valves. Unit 2 operating procedures will also be examined for this need.

5) Operations will evaluate with Training the need for a specific training module for Unit 1 ADV operation including training on ADV controller response.

Additional Information

Failed Components Identified

None

Similar Events

None